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Climates of suspicion: 'chemtrail' conspiracy narratives and the international politics of geoengineering

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Concurrent with growing academic and policy interest in 'geoengineering' the global climate in response to climate change, a more marginal discourse postulating the existence of a climate control conspiracy is also proliferating on the Internet. Here, the term 'chemtrails' is used interchangeably with the term geoengineering to describe the belief that the persistent contrails left by aeroplanes provide evidence that a secret programme of large-scale weather and climate modification is ongoing. Despite recent calls for greater appreciation of the diverse ways in which people conceive of and relate to ideas of climate control, and widespread acknowledgement of the importance of democratic public engagement in governance of geoengineering, the chemtrail conspiracy narrative has received very little attention in academic work to date. This paper builds on work highlighting the instability of the distinction between 'paranoid' and 'normal' views, and examines the chemtrail conspiracy narrative as a discourse rather than a pathology (either psychological or sociological). The analysis finds that while some elements of the chemtrail narrative do not lend themselves to democratic processes of deliberation, and potential for engagement with more mainstream discourse appears to be low, nevertheless certain elements of the discourse (such as the moral outrage at the idea of powerful elites controlling the climate, or the importance of emotional and spiritual connections to weather and climate) highlight concerns of relevance to mainstream geoengineering debates. Furthermore, the pervasive suspicion that characterises the narrative and its reminder of the key role that trust plays in knowledge creation and the justification of beliefs, signals what is likely to be a perennial issue in the emerging international politics of geoengineering.

KEY WORDS: geoengineering, climate change, public engagement, discourse analysis, conspiracy, chemtrails

Introduction

Recent years have witnessed a rapid growth in the attention being paid in both academic (Belter and Seidel 2013) and policy circles (House of Commons 2010; IPCC 2013) to the concept of direct large-scale intervention in the global climate, or geoengineering. In addition to an increasing amount of technical literature addressing the potential impacts and feasibility of the various techniques being discussed under this label, there is a growing social scientific literature examining the emergent politics and ethics of aspirations to global climate control (Gardiner *et al*. 2010; Hulme 2012; Humphreys 2011), and subjecting to critical scrutiny the discourses and practices of this emergent area (Bellamy *et al*. 2013; Cairns and Stirling 2014; Macnaghten and Szerszynski 2013; Nerlich and Jaspal 2012; Porter and Hulme 2013; Sikka 2012). In particular, the issue of public engagement with geoengineering research and decisionmaking has been cited as being of crucial importance for democratic governance in this domain (Corner *et al*. 2011; Macnaghten and Owen 2011; Macnaghten and Szerszynski 2013; Owen *et al*. 2012; Pidgeon *et al*. 2012), and a body of critical scholarship has sought to explore the ways in which dominant framings of the issue might act to constrain or close down genuine public participation in decisionmaking around geoengineering (Bellamy *et al*. 2012). Academic and policy discourse around geoengineering is often at pains to stress that geoengineering technologies are hypothetical, that their development is currently at an 'upstream' moment (Corner *et al*. 2011), to be used 'in case of emergency' (Markusson *et al*. 2013) or as a 'plan B' (Jamieson 2013) should radical emissions cuts fail.

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Running concurrently with these developments in mainstream academic and political discourse around the term geoengineering, and yet conspicuous by its absence in academic discussions to date, another public discussion around deliberate climate modification is taking place, largely online in internet forums and message boards. Here, the term 'chemtrails' is used (often interchangeably with the term geoengineering) to describe the belief that the persistent contrails left by aeroplanes provide evidence that a secret programme of large-scale weather and climate modification is ongoing, and is having devastating ecological and health consequences worldwide. While this belief is marginal, it is not insignificant: a Google search of the term 'chemtrails' returns over 2.6 million hits, and a study by Mercer *et al*. (2011) found that 2.6% of a sample of 3105 people in the US, Canada and the UK believed entirely in the existence of a conspiracy involving chemtrails (and around 14% believed in the conspiracy to some extent). Chemtrail activists frequently attend events and conferences on geoengineering, and indeed many academics working in this area have been subjected to threats and verbal abuse for their alleged role in the conspiracy (Keith 2013). There is thus widespread awareness among academics of the existence of these views, and yet, to date, there has been very little engagement with these ideas: the topic has only received a passing mention in academic publications (Brewer 2007; Buck 2010; Fleming 2010; Sweeney 2014), and those examining discourses around geoengineering have, to date, focused on unpicking the discourses of the more powerful actors (Sikka 2012), or examining mainstream media framings (Porter and Hulme 2013; Scholte *et al*. 2013), rather than these marginal claims.

Where it has been recognised, the chemtrail view has been dismissed as an unfounded conspiracy theory (Rayner 2008; Smith 2013), 'for the gullible' (Brewer 2007), and most engagement to date has taken the form of attempts to 'debunk' the belief (e.g. Contrail Science 2011; Metabunk 2014). Given that it has been argued that '[e]ffective and just decision making on geoengineering will require a greater appreciation of the diverse ways in which people conceive of and relate to the idea of climate control' (Porter and Hulme 2013), the invisibility of the chemtrail conspiracy in social scientific work on geoengineering is striking. It is perhaps indicative of a collective drawing of boundaries within academia around what is considered to be the rational political sphere, with the label of 'conspiracy theorist' being used to constitute chemtrail believers as a 'pathological political other . . . beyond the pale of political discourse' (Fenster 1999, 18). However, understanding the emerging politics of geoengineering, and taking seriously claims regarding the importance of public participation, requires an understanding of the whole discursive landscape around ideas of global climate control – including marginal ideas such as those held by chemtrail activists. Ignoring or dismissing these discourses out of hand as pathological or paranoid is to ignore potentially revealing insights about the emerging politics of geoengineering.

This article aims to enrich the academic discourse around ideas of climate control, through redressing the apparent invisibility of the chemtrail theory in current discussions of geoengineering. In so doing, the work presented here also contributes to a growing academic interest in the analysis of conspiratorial narratives (Birchall 2006; Dean 2000; Fenster 1999; Jones 2012; Marcus 1999), and responds to recent calls for geographers to use the critical interrogation of the discourses of conspiracy as a means to 'de-centre the geo-political gaze away from elite and official versions of global space, in order to consider alternative ways of knowing' (Jones 2012, 46). Rather than framing belief in chemtrails as pathology or fantasy, and (hypothetical, future) geoengineering as reality, both terms are understood here as discursive phenomena, the 'bounds of which are continually being negotiated' (Cairns and Stirling 2014). Analysing the chemtrail conspiracy narrative as a knowledge producing discourse (Birchall 2006; Jones 2009), and drawing out some of the parallel logics and themes that animate both the chemtrail narrative and broader discourses of climate change and geoengineering, allows an exploration of the boundaries of official knowledge, and the relationship between what is considered legitimate 'geoengineering' knowledge and illegitimate 'chemtrail' knowledge. Analysing the chemtrail narrative in this way also resonates with concerns within geography and other critical social science disciplines about how to encounter, articulate and represent difference without drawing it within one's own categorical schema as an aberration (Dixon 2009) or dismissing it as 'superstitious nonsense' (MacKian 2011).

The following section situates the paper within the context of academic debates around conspiracy narratives, in particular a trend away from attempts to fix the epistemological characteristics of 'conspiracy theory' as a stable object, toward understanding of conspiracy narratives as political discourse, best explored 'from the point of view of the believers' (Hellinger 2003, 208).

Conceptualising conspiracy

Thinking conspiratorially about power is neither new (Hofstadter 1964) nor confined to a particular geographical location (West and Sanders 2003). Accusations of conspiracy have long been powerful tools for gaining or consolidating political power: the claimed existence of a global Jewish conspiracy, for example, was an important part of Nazi propaganda during WWII (Pipes 1997), and claims of communist

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conspiracy in the US abounded during the Cold War, resulting in the excesses of the McCarthyist witch hunts (Goldberg 2001). However, concurrent with the rise of the internet (Soukup 2008), recent years have seen a proliferation of theories of conspiracy, questioning official versions of events, and offering counter-narratives around topics as diverse as the events of 9/11, the existence of AIDS, the deaths of JFK and Princess Diana or, in the case presented here, programmes of climate modification. Although these kinds of conspiratorial accounts are sometimes characterised as a 'fringe' concern (Pipes 1997, 178), the proliferation of conspiracy theorising in recent years has led some observers to describe contemporary society in terms of a 'conspiracy culture' (Knight 2000; Locke 2009), and to argue that conspiratorial forms of reasoning can now be considered 'mainstream' (Fenster 1999). Diverse attempts to account for the contemporary ubiquity of conspiratorial explanations have been proffered, from sociological accounts that view conspiracy theorising as a response to 'unsettling and dislocating' experiences of social upheaval and transformation (Marcus 1999; Oushakine 2009); or an attempt to map the overwhelmingly complex social landscape of postmodernity (Mason 2002); to those that characterise conspiracy theories as indicative of the opaqueness of the dominant power structures in a given society (Pelkmans and Machold 2011, 71), or as a form of 'moral reasoning that accounts for suffering by attributing blame' (Locke 2009, 567). Others have examined belief in conspiracy as a psychological phenomenon (Lewandowsky *et al*. 2013; Wood *et al*. 2012), arguing at one extreme that the growth in conspiracy theorising is best characterised as 'individual hysterias connecting with modern social movements to produce psychological epidemics' (Showalter 1998, 3).

Notwithstanding increasing amounts of academic attention, the precise nature of 'conspiracy theory' as an object of study has proved to be extremely 'slippery' and difficult to define. Some have attempted to characterise conspiracy theory as a form of 'deviant' knowledge, illustrating certain epistemological flaws or deficiencies (Bayat 2006; Keeley 1999). For example, Keeley makes the claim that it is possible to distinguish epistemologically a class of explanations he refers to as 'unwarranted conspiracy theories', 'from those theories which deserve our assent' (Keeley 1999, 111). Others have drawn parallels between conspiracy theories and the characteristics of a 'degenerating research program', in which new layers of conspiracy are constantly required in order to rationalise each new piece of disconfirming evidence. This has shifted the focus away from the apparent epistemic failures of the theories, and onto the apparent 'cognitive failures' of the individuals who hold these theories to be true despite any amount of evidence to the contrary (Clarke 2002).

However, conspiracy theory cannot be understood as false by definition, given the re-occurrence throughout history of plenty of examples of demonstrably real conspiracies (Wood *et al*. 2012). Given that conspiracies evidently can and do occur, the identification of persistent epistemological differences between conspiracy theories and other theories becomes in effect impossible, and distinguishing between a political analysis that is neither 'paranoid' nor 'naive' is recognised as challenging (Coady 2006). Awareness of the indeterminate epistemological characteristics of 'conspiracy theory', as well as the potential of the term to be used pejoratively as a means of 'discrediting and stifling counter narratives' (Bayat 2006, 5), has prompted various authors to problematise the term (Bayat 2006; Bratich 2002; Jones 2012). According to Pelkmans and Machold (2011), the term 'conspiracy theory' has more to do with the relationship of the claim in question to fields of power, than the content of the claim itself. As these authors point out, theories of conspiracy postulated by the powerful (such as the suggestion of the existence of a programme of weapons of mass destruction in Iraq as justification for the US-led invasion of 2003) are never, even when demonstrably false, labelled as conspiracy theories. They stress that truth and untruth are produced in asymmetric fields of power and argue that 'assessments of conspiracy theories should focus not on the epistemological qualities of these theories but on their interactions with the socio-political fields through which they travel' (Pelkmans and Machold 2011, 66).

Some anthropologists have drawn attention to the 'sense-making' effects of conspiracy theories (Sanders and West 2003), and argued that these beliefs are revealing of people's 'life worlds and consciousness', as well as highlighting 'profound suspicions about how power operates in a globalizing world' (Niehaus and Jonsson 2006, 183). However, when the beliefs in question are held by people closer to home, such 'hermeneutic generosity' (Niehaus and Jonsson 2006, 183) is sometimes less forthcoming, and 'it is apparently easier to conclude that those who live in societies where the scientific paradigm constitutes a predominant interpretive schema "ought to know better" (Sanders and West 2003, 14). Perhaps as a result, conspiracy has something of an 'unwelcome place' in social science (Hellinger 2003, 206), and responses to conspiracy claims within social science are often characterised by what Birchall terms 'contamination anxiety', resulting either in attempts to discredit conspiracy theory by 'debunking' point by point, or 'trying to explain them away by the very logic that founds the position from which one speaks' (Birchall 2002, 245). The anxiety generated by conspiracy narratives, is, she argues, indicative of a broader anxiety around epistemology and the public sphere, particularly 'over the way in which knowledges are circulated and established outside or on the

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margins of the traditional site for knowledge production, the academy' (Birchall 2006, 68).

In attempting to pin down 'conspiracy theory', various authors have drawn attention to the unstable boundary between the 'paranoid' and the 'normal', and illustrated that conspiratorial logics and fears (as well as real conspiracies) are 'detectable and manifest in different ways and with different intensities across a wide spectrum of situations' (Marcus 1999, 2). Without denying the extremist or fundamentalist tendencies of some conspiracy beliefs, this has seen a move away from the characterisation of conspiracy theory as pathology, and towards an understanding of conspiratorial narratives as being 'a "reasonable" component of rational and commonsensical thought and experience in certain contexts' (Marcus 1999, 2). Thus, various authors have highlighted that conspiratorial fears and suspicions are not a wholly irrational or 'paranoid' response to the increasingly secretive nature of government actions 'behind closed doors' (Jones 2009, 362), or the 'subcultural atmospheres and assumptions of elites' (Marcus 1999, 3) According to some, the convergence of rapid technological developments with increasing levels of surveillance and secrecy (Bratich 2006), as highlighted for example, by revelations of the former NSA employee Edward Snowden in 2013 (*Guardian* 2013), have effectively called a 'suspicious public into being' (Dean 2004, 371) and brought certain forms of conspiratorial reasoning away from the margins. Simultaneously, insights from social and political sciences have called into question idealised accounts of government and organisational decisionmaking, drawing attention instead to the increasingly distributed, networked nature of governance (Hajer 1997; Sorensen and Torfing 2005), and the ways in which the exercise of incumbent power involves a diverse range of actors and informal as well as formal processes. This suggests that incumbent political agency is often exercised in necessarily more opaque or 'covert' ways than popularly represented and, in this sense, conspiracy (as covert joint coordination of agency), rather than an exception, might be understood to be – in certain respects – a norm. Seen in this light, the tacitly selective marginalising of conspiratorial accounts only in particular contexts seems particularly worthy of academic attention.

Others have pointed to the ways in which even the conceptual rhetorics of social theory themselves have a 'paranoid potential' (Locke 2009). As Robinson argues, 'the whole point of theory, of social science, is to uncover the forces and processes at work in the social universe which lie beneath – indeed epistemologically speaking, out of the range of – sensory perception' (Robinson 1996, 5, cited in Hellinger 2003, 205). Similarly, conspiracy theorists are also 'in the business of uncovering forces and processes lying just beyond sensory perception' (Hellinger 2003; Locke 2009). Latour similarly highlights the appeal by both social theorists and conspiracy theorists to powerful hidden agents acting 'consistently, continuously, relentlessly'. As he points out:

> Of course, we, in the academy like to use more elevated causes – society, discourse, knowledge-slash-power, fields of forces, empires, capitalism – while conspiracists like to portray a miserable bunch of greedy people with dark intents, but I find something troublingly similar in the structure of the explanation.
>
> Latour (2004, 229)

In line with an interest in the examination of subaltern, or counter, narratives, some authors have argued that conspiracy theories have the potential to be empowering under certain circumstances to 'serve popular resistance and empowerment' (Hellinger 2003, 205), or to act as 'counter-knowledges' that resonate with the lived experiences of marginalised groups (Fiske 1996). However, others have characterised conspiracy theories as distracting from 'real politics', fulfilling much the same function that Marx attributed to religion (Wheen 2004), through 'promoting a cynical abandonment of profound political realities that merely reaffirms the dominant order . . . and substitute fears of all powerful conspiratorial groups for political activism and hope' (Fenster 1999, 219). Conspiratorial accounts can be found across the left/right political spectrum and, as even a cursory examination of the extreme and racist content of some anti-semitic conspiracy beliefs (e.g. Jew Watch 2014) will testify, are often far from progressive (Flint 2004). Recognising the politically problematic, reactionary, racist and offensive nature of some conspiracy theories, while accepting that others may be true, or have the potential to challenge power, raises the question of whether it is possible to distinguish between 'reasonable' and 'unreasonable' conspiracy theories. According to Pelkmans and Machold:

> the element that seems to provide the best indication for assessing this issue is the slippage from distrust to disgust. That is to say, suspicion of conspiracy theorizing seems particularly warranted when the theories serve to seal the boundaries around an imagined community, or when they are overwhelmingly used as a means to scapegoat targeted groups.
>
> Pelkmans and Machold (2011, 72)

However, part of the problem, according to Birchall, with making pronouncements on the 'import, role, or function in the world' of popular knowledges such as conspiracy theory, is that they oscillate between the serious and ironic or playful, and are constantly shifting (Birchall 2006, 23). While the political implications of conspiracy theorising are thus far from clear cut, the self-reinforcing nature of the

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marginalisation of those who hold these beliefs has long been recognised. As Hofstadter observed fifty years ago:

> the situation becomes worse when the representatives of a particular social interest . . . are shut out of the political process. Having no access to political bargaining or the making of decisions, they find their original conception that the world of power is sinister and malicious fully confirmed.
>
> Hofstadter (1964, 86)

Methodology

Situated within a broadly interpretive research framework, the analysis presented here builds on the Foucauldian approach to the analysis of marginal texts and informal or popular knowledges as outlined by Birchall (2006, 11). The chemtrail conspiracy narrative is here analysed as a knowledge-producing discourse (Anderson 1996; Birchall 2006; Jones 2012). In this context, discourse is taken to be 'a shared way of apprehending the world. Embedded in language it enables those who subscribe to it to interpret bits of information and put them together into coherent stories or accounts' (Dryzek 1997, 9). In contrast with previous survey-based work (Mercer *et al*. 2011) that has attempted to show the prevalence of a belief in chemtrails among a subset of the population without describing those views in detail, this paper is focused on a qualitative examination of the content and form of the discourse but makes no claim about the prevalence of these views. The analysis presented here does not seek to address the truth or falsity of the individual claims that constitute the discourse, an endeavour which would be problematic in any case from an interpretive perspective in which such judgement is 'dependent on the respective discursive context' (Methmann *et al*. 2013, 6). Likewise, the label of 'conspiracy theory' is not conceptualised as a stable object, but rather as a powerful way in which certain forms of knowledge are discredited (sometimes with good reason, other times less so). Neither does the analysis treat these beliefs as symptomatic of other (unseen) social structures or forces. Rather, the aim is to 'reveal the infrastructure of [the] discourse, which generates the meaning of social and natural phenomena' (Methmann *et al*. 2013, 6), and to examine the way the chemtrail narrative articulates (or not) with other discourses around the climate and climate manipulation. This allows an exploration of the shared dynamics and logics that shape both chemtrail knowledge and other discourses of climate change and climate control, and facilitates the asking of questions about the possible political implications of this discourse for the international politics of geoengineering.

As the chemtrail narrative is largely an internet-based phenomenon, the analysis presented here is confined to sources on the internet. The difficulties posed by analysing internet texts, given that the internet is in constant flux, are well recognised (Gerstenfeld *et al*. 2003), and a purposive sampling strategy was necessary to select texts for analysis. The search terms 'chemtrails' and 'geoengineering AND chemtrails' were used to locate websites pertaining to the conspiracy using the search engine Google. From this search strategy, 20 websites containing content referring to a belief in a conspiracy involving chemtrails were selected for more detailed analysis (see Table 1). Given the extensive (and expanding) volume of material on these sites, a selection strategy for the analysis of particular pages was devised. Based on a preliminary exploration of their content and style, a number of thematic categories were developed in order to guide subsequent selection of pages for analysis and ensure that a broad range of content was included. These were pages pertaining to definitions and characterisations of chemtrails and geoengineering (including purpose); history of the phenomenon; data and evidence; ecological and health impacts; personal stories; and activism/self-protection strategies. Not all sites covered all of these themes but, where these were present, selected pages from each of these categories were added to the corpus for analysis. A total of 72 texts formed the final corpus for analysis. Texts were (necessarily) diverse and informal, reflecting the forms of communication on the internet around this topic. Items analysed ranged from more traditionally formatted articles and blog posts, to transcripts of videos, flyers for the public, personal histories/biographies, newsletters,

Table 1 Chemtrail conspiracy websites analysed

www.geoengineeringwatch.org
www.globalskywatch.com
www.coalitionagainstgeoengineering.org
www.globalmarchagainstchemtrailsandgeoengineering.com
http://chemtrailsnorthnz.wordpress.com
www.chemtrailsprojectuk.com
www.look-up.org.uk
www.chemtrails911.com
www.chemtrailcentral.com
www.uk-skywatch.co.uk
http://aircrap.org
www.carnicominstitute.org
http://chemtruth.ning.com
http://educate-yourself.org/ct
http://strangehaze.freeservers.com
http://chemtrailsplanet.net
http://www.zengardner.com/covert-geoengineering-insanity-true-source-climate-change
http://www.skyderalert.com
http://beforeitsnews.com/chemtrails
http://www.stopsprayingcalifornia.com

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FAQ pages, and comments on forums or following an article. The software Nvivo (QSR International Pty Ltd 2012) was used to aid analysis: web pages were imported and their content was thematically coded through an inductive process whereby themes were identified from the texts themselves. Bratich's (2002) thematic questions to ask of conspiracy narratives (namely, the narrative composition; community and interests; authorisation procedures; location; prescriptions and instrumentalisation) served as a heuristic to guide analysis.

The nature of the object under study, and the medium of the web [what Escobar (1993) has referred to as 'Cyberia'] is necessarily nebulous, and constantly changing, thus it is impossible to claim that the sites and individual pages analysed here are 'representative' of the population of texts on the internet. Indeed one of the characteristics of conspiratorial accounts on the internet is the vast amount of information associated with these: what Dean has characterised as 'bottomless vats of information, endless paths of evidence' (Dean 2000, 1). However the aim of this paper is not to attempt to fix 'the definitive chemtrail narrative', which in any case is, like other discourses, 'radically unstable' (Methmann *et al*. 2013, 7), but to begin to delineate salient dimensions of the narrative in order to draw out ways in which it articulates with other discourses around climate change and climate control.

With regard to the geographical scope of the websites analysed, although it is not always possible to ascertain in which country the individuals or organisations responsible for the website content are located, of the 20 websites analysed, it was possible to establish a geographical link for 16. Of these, 12 appear to have originated in the US.

The findings from the analysis are presented below in three thematic sections. The first deals with the narrative composition, the content of the chemtrail belief, its history, form, and style. The second examines chemtrail knowledge, the ambivalent place of science and scientific vocabulary in the discourse, the ways in which chemtrail knowledge is contested/debunked, and the role of that trust plays in these processes. The final section deals with political action on chemtrails, in particular exploring notions of heroic agency among chemtrail believers, and their parallels in mainstream geoengineering and climate change discourse.

'A crime like no other'

The chemtrail conspiracy falls into the category that Pipes has labelled 'world conspiracies' (as opposed to petty or operational conspiracies); that is, a belief in:

> a powerful, evil and clandestine group that aspires to global hegemony; dupes and agents who extent the group's influence around the world so it is on the verge of succeeding; and a valiant but embattled group that urgently needs to help stave off catastrophe.
>
> Pipes (1997, 21–2)

Chemtrail believers have labelled chemtrails as 'the largest crime against humanity in human history' (Global Skywatch 2014c); 'the biggest issue – literally "above" all others and "affecting" all others' (Chemtrails Project UK 2014); and 'a crime against the populace like no other' (GeoEngineering Watch 2014a).

The chemtrail conspiracy narrative can be traced back to the late 1990s, with one of the earliest references being an article published online in 1999 in which it is claimed that: 'Contrails spread by fleets of jet aircraft in elaborate cross-hatched patterns are sparking speculation and making people sick across the United States' (Thomas 1999). While certain elements of the narrative are fixed, namely the belief that the persistent trails left by aeroplanes are being deliberately sprayed and are not simply contrails, other elements, such as what exactly is in the trails – for example, aluminium, barium, pathogens, or even desiccated blood (Stop Spraying California 2014), who is spraying these things, and to what end – are more fluid and open to diverse interpretations. Profit motivations feature in various guises, from reference to, *inter alia*, futures markets, agricultural corporations, and 'big oil':

> The most obvious and benign reason is to control the weather. Predicting the weather is big business and people make big money on the futures markets from doing so.
>
> Look-up! (2014b)

> The growing evidence repeatedly confirms that aircraft are spraying dirty aerosols to warm the climate in polar regions for drilling access by BIG OIL as faux National Security'.
>
> Chemtrails Planet (2014)

> . . . it's more than a coincidence that genetically-modified aluminium-resistant seeds have been developed by Monsanto . . . the environment is being poisoned deliberately to enable corporations to make money and gain more control over the world's food supply.
>
> Northland New Zealand Chemtrails Watch (2014)

> . . . to induce bioengineered disease organisms in order to reap staggering profits for the pharmaceutical cartels.
>
> Educate-Yourself (2014)

Population control is another recurrent theme:

> They are altering the weather and sunlight to cause a seemingly 'natural' global famine to depopulate human beings to numbers of their choosing. They are committing perpetrated democide, depopulating exactly as they said

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> they would do, and they are using 'global warming' as their cover story for mass murder.
>
> GeoEngineering Watch (2014g)

Likewise, the idea that countries may gain a military advantage through controlling the weather and manipulating the atmosphere is a common theme. As one prominent chemtrail activist put it:

> people ask, why would they want to control the weather? Why wouldn't they? It's what they do. The weather is the most destructive weapon they could control.
>
> GeoEngineering Watch (2014b)

Frequent reference is made to the historical association of weather modification and the military as outlined by historians such as Fleming (2010) and Hamblin (2013), and sites such as geoengineeringwatch.org make reference to historical attempts at hurricane modification, such as Project Stormfury, and the use of cloud seeding during the Vietnam war (GeoEngineering Watch 2014h).

The partial and fragmented nature of the chemtrail plot resonates with Dean's characterisation that most conspiracy narratives 'fail to delineate any conspiracy at all', but simply 'counter conventional narratives with suspicions and allegations that, more often than not, resist coherent emplotment' (Dean 2002, 92), suggesting the possibilities of malevolent elite plays of power, and linking facts, speculations and questions. This, she argues, illustrates that rather than attempting to map the totality of the social world, 'conspiracy's insinuations disrupt the presumption that there is a coherent, knowable reality that could be mapped' (p. 93). However, while the narrative may be fragmented and incomplete, it is also the case that it incorporates a seemingly ever expanding subset of topics. Thus, according to one site, the chemtrail conspiracy is to blame for drought in Africa, forest fires, bee decline, fisheries collapse, increases in Alzheimer's and autism, extreme weather events, reduction of arctic sea ice, and species extinctions, among other ills (GeoEngineering Watch 2014b).

Keeley has highlighted the process by which many conspiracy beliefs rely on scepticism in an increasingly large number of people and institutions in order to maintain the belief. It is through this process that some forms of conspiracy belief begin to 'undermine the grounds for believing in anything' (Keeley 1999, 123). The escalation of scepticism required to maintain the belief in the chemtrail conspiracy is apparent in the following quote:

> The national airspace of each and every country across the planet is very closely monitored. Getting huge airliners aloft in order to heavily spray the skies is not only very expensive, it must require the foreknowledge and explicit approval of an assortment of federal and state agencies . . . As a matter of fact, because of the many new laws concerning the control of airspace in the post 9/11 era, both Homeland Security and the Patriot Act have made it even more difficult for any and all flights over the nation to meet very specific and stringent criteria. In view of these very strict and onerous protocols necessary for fight approval, it is all the more obvious that there are many in government who are directly participating in this relentless chemical assault.
>
> GeoEngineering Watch (2014a)

The chemtrail narrative is perhaps best characterised as a constantly shifting ideoscape (cf. Appadurai 1996), with popular websites such as geoengineeringwatch.org, or coalitionagainstgeoengineering.org regularly updated with new sources of information, videos, photos, articles, discussion posts etc. The constant production of new 'evidence' largely in the form of photographs or results of rainwater and soil tests, requires chemtrail activists to be vigilant in order to 'keep up':

> Each of us needs to be aware and awake. We need to examine and re-examine data day in and day out so that we can keep up with changes and not lock into perceptions and conclusions.
>
> GeoEngineering Watch (2014f)

The shifting, ever-expanding nature of the textual sources associated with the chemtrail narrative chimes with Soukup's characterisation of 9/11 conspiracy websites as being constituted by 'perpetually open (hyper)text and with an infinite number of possible versions of digital images, sounds, videos, etc (bricolage)' . . . which offer 'an endless loop of signification for the web browser' (Soukup 2008, 19). While Soukup identifies a pleasurable dimension for the individual partaking in this endless process of uncovering 'the truth' about 9/11, the chemtrail narrative by contrast – with its central message that each and every individual is 'under attack' – is (understandably) associated with expressions of a high level of fear, anxiety, sadness and anger, as the following comments on the Coalition Against GeoEngineering site illustrate:

> I get so angry. I really take it personal, When I see them making big X's in the sky. That means Bulls eye. I am so frustrated when I think of the beautiful tree's, The wild animals, Insects, People & little children, That don't even have a chance of a good start at life.
>
> I am crying right now. Haven't done that but 2 times in my adult life. This is the third. SOMEONE tell me what to do to actually do something about this!!! I will do ANYTHING that could possibly have an effect.
>
> there it was . . . the damn jet flying overhead, right over the house, plain as day, leaving that disgusting white line behind it. It is so depressing. Day or night, it doesn't

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> matter. They have their agenda to destroy our beautiful mother earth, and all living things. Breaks my heart.
>
> I'll be damned if I'll let someone exterminate me or my kids without giving them a fight the size of world war III . . . I'm ready to fight, who is with me?
>
> Coalition Against Geo-Engineering (2011)

Some compare coming to terms with the existence of chemtrails as similar to experiencing the five stages of grief (Global Skywatch 2014b), while one site offers readers advice on 'coping with the knowledge', which is described as an overwhelming and emotional experience, akin to a person finding out that their 'spouse had not only been having an affair for the last 20 years, but that they had been slowly poisoning them too' (Look-up! 2014a).

While the degree of emotional trauma apparent among believers in the existence of a chemtrail conspiracy can appear extreme, when the discourse is situated in the context of contemporary climate discourse more broadly, it appears less anomalous. For example, Hulme has suggested that we are living in a 'climate of fear about our future climate'. As he points out: '[t]he language of the public discourse around global warming routinely uses a repertoire which includes words such as "catastrophe", "terror", "danger", "extinction" and "collapse" ' (Hulme 2008, 5). The chemtrail narrative could thus be read as one manifestation of this wider cultural climate of fear.

Fenster (1999, 137) has argued that the key or pivotal point in a conspiracy narrative is what he terms the moment of 'totalizing conversion' whereby the individual's world is reinterpreted once and for all. While others have questioned the centrality of this moment of conversion (e.g. Dean 2000), within the chemtrail narrative at least, the idea of an awakening is prominent. For example, one activist describes the moment and its importance thus:

> We always need to remember that first moment of awakening, that first beautiful moment where we burst out and said: I'm awake, these are all lies. I can see the tyranny around me, and I've had enough of it. Hold that awareness, hold that awakening, and nothing can stop us.
>
> Whyte (2012)

Personal stories of awakening, often linked to stories about the experience of health impacts attributed to chemtrails, feature prominently within the narrative. The emotional content of these stories and the discourse more broadly reveals the fundamental importance of deep personal connections to weather and climate. For example, Clifford Carnicom addressed the 'Consciousness beyond Chemtrails' Conference in August 2011 as follows:

> This world is not an act of chance. That blue has meaning to all of us, in a very deep and a profound and spiritual way ultimately. And when that blue was taken away as it is here I recognise, at least from my heart, I know when something's wrong. And I know what my responsibility and obligation is.
>
> Carnicom (2012)

These kinds of emotional connections to climate are rarely foregrounded in mainstream discussions of geoengineering, instead they are often treated dismissively as of little consequence. For example, prominent geoengineering advocate Lee Lane typified this attitude in his claim that under stratospheric aerosol injection:

> Skies may appear to be somewhat whiter, and there would be an increase in acid precipitation from aerosol injections, but this is unlikely to be of more than local import.
>
> Lane (2013, 132)

'We have no trust in you'

Understanding the dynamics of chemtrail knowledge, and particularly how it articulates or not with other more 'mainstream' understandings, requires a brief exploration of the discursive overlap between the terms geoengineering and chemtrails. The increasing academic (Belter and Seidel 2013) and mainstream media (Porter and Hulme 2013) usage of the term geoengineering has been widely noted, and the discourses around geoengineering have been subjected to critical scrutiny by a number of authors (Bellamy *et al*. 2012; Cairns and Stirling 2014; Markusson *et al*. 2013; Nerlich and Jaspal 2012; Sikka 2012). While researchers working on topics associated with geoengineering are quick to distance themselves from those who believe in the chemtrail phenomenon, conversely those in the chemtrail community have identified in the growing body of literature on geoengineering, what they consider to be solid evidence to illustrate that programmes of aerosol spraying are ongoing, and there is evidence that many actors are keen to associate themselves with the epistemic authority of 'hard science' associated with the term geoengineering. The relationship between the two terms, and the desirability of using one or other, is the subject of ongoing debate within the chemtrail community. Some actors suggest that chemtrails is a 'laymans term for geoengineering' (GeoEngineering Watch 2014b), others view chemtrails as 'a weaponized version of geoengineering' (Chemtrails Planet 2014)', or suggest that geoengineering is simply a more recent term to describe chemtrails:

> A world-wide program is underway to control the weather since the mid-90s. It is being done without your consent. It is called GEOENGINEERING or SRM (Solar Radiation Management) and originally: chemtrailing.
>
> Aircrap (2013)

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Geoengineeringwatch.org urges people to stick to the term geoengineering to avoid being dismissed as conspiracy theorists when approaching new people to talk about spraying programmes:

> First of all, semantics are extremely important in regard to the introduction of geoengineering. The geoengineering term is related to hard science, the 'chemtrails' term has no such verifiable basis but rather leads anyone that Googles the term straight to 'conspiracy theory' and 'hoax' definitions. Use the terms 'climate engineering' and 'geoengineering'.
>
> GeoEngineering Watch (2014d)

Similarly some actors are arguing for abandonment of the term chemtrails, for example:

> Andrew Bridgman, the head of the Southern California Office of the Agriculture Defense Coalition, like Carnicom, hastily shuns the use of the term chemtrail. 'It's an antiquated label for geo-engineering, which is about weather modification' he asserts, adding that it is important to use the same terminology as academics, politicians and the media, in order to be effective in engaging them.
>
> Northland New Zealand Chemtrails Watch (2014)

The desire, as reflected in these latter comments, of chemtrail activists to be associated with the epistemic authority of science is one aspect of an interesting ambivalence towards science within the chemtrail discourse. On the one hand, appeals to science: scientific evidence, data, proof, laboratory test results, and the opinions of 'experts', are all crucial to establishing the legitimacy of the chemtrail phenomenon, and in this sense the discourse mirrors the legitimation strategies of more official knowledges – a fact that has been observed for other popular knowledges (Birchall 2006, 19). On the other hand, it is scientists who are highly implicated in the current state of affairs, and critique is levelled at 'the scientific worldview', the 'pharmaceutical approach', and the 'narrow minded PhD's' who have according to one site 'wrecked the world' (GeoEngineering Watch 2014c):

> What the chemtrail 'pharmaceutical approach' really represents is the utter failure of many of the existing scientific paradigms and technological applications in use around the world today. That modern science feels compelled to lay down blankets of toxic chemicals around the globe 24/7 is a glaring testimony to its ignorance (Chemtrails are toxic), arrogance (Chemtrails can't fix the problem) and powerlessness (Let's do anything we can, even it makes the problem much worse).
>
> The Health Coach (2013)

It is notable that, apart from the belief that these programmes are already occurring, these charges are not dissimilar to critiques of the possibility of a 'technological fix' for climate change (Lovbrand *et al*. 2009), and charges of scientific hubris levelled at aspirations to climate control, from within more mainstream academic critique of solar geoengineering (Hamilton 2013). Likewise the notion that chemtrails constitute an 'essentially dangerous and reckless experiment' (Cosmic Convergence 2013a), and the metaphorical reference to humanity being 'lab rats' (GeoEngineering Watch 2014f), both common elements of the chemtrail discourse, resonate with concerns raised in public engagement exercises around the concept of stratospheric aerosol geoengineering (e.g. Macnaghten and Szerszynski 2013).

One common approach to encountering the chemtrail conspiracy is illustrated by the proliferation of 'debunking' sites that attempt to disprove individual claims. Willman has characterised these exchanges as a 'hegemonic struggle between the conspiratorial camp and the defenders of common sense over the status of social reality' (Willman 2002, 21). Willman maintains that both the conspiratorial view of the primary importance of human agency, and the debunking view of the importance of contingency, are ideological visions of historical causality, 'social fantasy' rather than representations of reality. More importantly here, the strategy of 'debunking' arguably misses the point that such beliefs reflect not so much a lack of science as a lack of trust. Keeley has argued that conspiracy beliefs:

> throw into doubt the various institutions that have been set up to generate reliable data and evidence. In doing so, they reveal just how large a role trust-in both institutions and individuals-plays in the justification of our beliefs.
>
> Keeley (1999, 121)

A recent exchange between an audience member (a believer in chemtrails) and David Keith (a prominent geoengineering advocate) at a recent debate on geoengineering at the University of Oxford is revealing of the form of these dynamics:

> [Audience member]: I think the issue is of one of disbelief. I think that the majority of people who are convinced about this subject cannot fathom how you cannot be aware of it because to us it's completely obvious. So that's where the conflict is. If, truly, you don't know about it then we can only have respect for you for promoting research into it, however . . .
>
> [David Keith]: . . . The thing that I'm actually advocating has nothing to do with the thing you're talking about.
>
> [Audience member]: But it's a question of trust isn't it? [. . .] we see what's going on at the moment, which is definitely not benign, and so therefore we have no trust in you. And we believe that what you're trying to do is an

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> exercise in subterfuge. You are trying to soften the blow so that when you have to admit what's going on, we will then go, oh great okay, no worries, we know you did it to protect us. We don't believe the story. So it's a question of trust.
>
> Public debate 'The case for and against geoengineering' (2013)

With regard to the emerging international politics of geoengineering, the issue of trust (often lacking in the international political sphere; Kydd 2005) is likely to be perennially problematic. The attribution of a given weather or climate event to anthropogenic climate change is already widely recognised as problematic (cf. Pielke Jr 2010, chapter 7), but the drawing of causal chains of attribution would become increasingly complex (and open to suspicion) should a programme of solar geoengineering go ahead. The lack of trust and suspicion that characterises the chemtrail belief arguably offers a window of insight into the likely future sources of conflict and insecurity around (in particular solar) geoengineering. Without wishing to oversimplify the link between conspiracy belief and violence (Bartlett and Miller 2010), the recent attacks against polio vaccination workers in Pakistan, as a result of a widespread belief that vaccination programmes in the country are part of a conspiracy to make male Muslim children sterile (BBC 2013), are a powerful illustration of the ways in which an apparently marginal idea can take root in a given context as a result of reflecting widely held worldviews and experiences (in this case anti-American sentiment and distrust of international institutions after years of conflict), with violent and destabilising consequences.

'A last ditch effort to save this world'

Activism is an important component of the chemtrail discourse, and takes various forms. One commonly advocated form of action parallels mainstream notions of 'citizen science', in which citizens are urged to collect rainwater and snow for laboratory analysis (GeoEngineering Watch 2014e). In line with a noted rise in the availability of mobile and web-based tools that facilitate the collection of environmental information by the public (Malykhina 2013), one site offers a mobile app to help people gather photographic evidence of chemtrails via their mobile devices (Skyder ALERT 2014). Other activism strategies range from more standard campaigning tools (such as raising awareness through sharing content online; organising a demonstration; putting up stickers and signs; lobbying one's MP), to visualisation techniques and the 'power of prayer' to rid the sky of chemtrails (Educate-Yourself 2014).

Taking some form of action is often framed as a duty or responsibility of those who have 'woken up' to the reality of the chemtrail conspiracy:

> Every person who looks up to the sky and sees the horrific cover up of chemtrails is surely responsible to do their part.
>
> Cosmic Convergence (2013b)

> Exposing chemtrails is no longer a choice. It's not even a responsibility. It's a desperate last-ditch effort to save this world from a destruction unmatched in human history.
>
> Global Skywatch (2014a)

Chemtrail activists are portrayed within this discourse as a valiant group, fighting against the odds, and suffering ridicule, in a nearly hopeless situation to save the world from certain disaster. The particular (heroic) understanding of individual agency within the chemtrail narrative chimes with Harding and Stewart's reference to conspiratorial sensibilities being 'fuelled by dreams of a triumphant individual agency rising to combat the hegemony of the knowledge industries' (Harding and Stewart 2003, 270). Interestingly, a parallel notion of heroic agency can be detected in the more mainstream discourse around geoengineering, in which the impending catastrophe in question is a 'climatic emergency' (Markusson *et al*. 2013), and all that stands between humanity and certain destruction are the actions, intellect and vision of a group of scientists and engineers who put their mind to finding technological solutions to the problem of climate change. The emergency rhetoric within both the chemtrail discourse and mainstream geoengineering discourse, uses ideas such as 'tipping points', 'thresholds' and 'irreversibility' as rallying calls for action. For example, discussion of research into geoengineering is sometimes situated within the context of the possibility of 'climate surprises': 'in which the climate system crosses some threshold, resulting in "large, abrupt, and unwelcome" changes (NAS 2002, 1), and our current predicament becomes even more alarming' (Bodansky 2013, 540). Similar language is echoed in the chemtrail discourse. One site, for example, refers to chemtrails as 'pushing the planet beyond critical thresholds which just might exceed dire points of no return' (Cosmic Convergence 2013b).

The importance of individual action within the chemtrail discourse also chimes with Paterson and Stripple's noting of an increasing focus on the individual, and individual actions such as carbon accounting within mainstream climate change discourse, which (they argue) can be read as a form of governmentality, representing a shift in the way that subjects are being formed around climate change (Paterson and Stripple 2013).

It has been argued that agency is conceptualised in distinctive ways within many conspiracy narratives. Anderson describes the conspiratorial view of agency as being 'about specific people or groups of people, acting with purposes that are undisclosed or outside accountability or even examination by others'

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(Anderson 1996, 96). Within this picture there is little room for blind social or economic forces, and chance often only features in as far as this is how secret information is understood to have become public. This insight goes some way towards explaining the association of the chemtrail belief with scepticism about anthropogenic climate change (as being a result of excessive carbon dioxide emissions). For example, various sites refer to climate change as a 'hoax' (e.g. Global March Against Geoengineering and Chemtrails 2014; Northland New Zealand Chemtrails Watch 2014), and many suggest that 'the climate change to fear most is actually caused by chemtrails' (Chemtrails Planet 2014). The events referred to as 'Climategate' (Koteyko *et al*. 2013) are frequently referenced, and it is argued that dissenting scientific views in the climate change debate have been systematically silenced:

> From the beginning there have been scientists who disagreed with the theory that increases in greenhouse gases are harmful, but everything has been done to prevent their views from appearing in the IPCC Reports.
>
> Global March Against Geoengineering and Chemtrails (2014)

Clearly, the idea that collectively, without intent, humanity has altered the climate in dangerous ways does not fit within a conspiratorial understanding of events and situations coming about as a result of human agency. Within this context, then, the association between climate scepticism and chemtrail conspiracy makes sense. However, this association also illustrates the difficulty with situating the narrative along the traditional left/right political spectrum. On one hand, the chemtrail discourse chimes with concerns sometimes characterised as more traditionally 'left-wing' (for example, concerns with social injustice, corporate power and the environment); on the other hand, anxieties about 'big government' expressed in belief in the New World Order, climate scepticism, fears about limits to individual freedoms etc. chime with more 'right-wing' subject positions. Indeed it has been argued that 'the political spectrum anchored by Left and Right finds itself in jeopardy . . . through the emergence of conspiracy theories' (Bratich 2002, 146), and the frequent occurrence of politically 'odd bedfellows' on conspiracy sites has been commented upon by various authors (Gerstenfeld *et al*. 2003, 34).

The reference to 'climategate' within the chemtrail discourse also serves as a pertinent reminder that (rather than being the preserve of a fringe group of conspiracy theorists) the realm of international climate governance more broadly is itself shot through with conspiratorial rhetoric and accusations on all sides of the debate (Lahsen 1999): from the claim that climate change is the 'greatest hoax' perpetrated on the American people (Inhofe 2012) to the claim that a small but powerful group of corporate-funded scientists have purposefully confused the issue of climate change (see e.g. Oreskes and Conway 2010). Likewise, suspicions and fears of a conspiratorial nature are detectable in more mainstream geoengineering discourse, for example the reference to the hypothetical but menacing figure of the 'rogue geoengineer', sometimes even referred to as a 'greenfinger' character that has become a feature of both mainstream media (Vidal 2013) and academic geoengineering discourse (Bodansky 2011; Victor 2008). Social scientific critique also displays a somewhat conspiratorial dimension, such as claims that it has become:

> blatantly clear that special interests, including private corporations, conservative think tanks and scientists affiliated with both have drawn on a variety of discursive frames to limit, shape and mould the current debate surrounding geoengineering . . . [in order to] force closure on the climate change debate.
>
> Sikka (2012, 173)

Conclusion

The foregoing analysis has sketched out the form of the contemporary chemtrail conspiracy narrative, and drawn out the ways in which similar logics, concerns and fears animate both the chemtrail discourse and wider discourses of fear about the climate (Hulme 2008), as well as more mainstream discourse around the term geoengineering. In so doing, the analysis has highlighted the unstable nature of the term 'conspiracy theory'. Labelling the belief in chemtrails as a 'conspiracy theory' is a powerful means of discrediting the narrative as irrational and unfounded, and may be a means of dismissing outright the concerns central to the narrative. However, this analysis suggests a number of ways in which the chemtrail narrative may contain important insights and implications for the emerging politics of geoengineering that cannot be dismissed out of hand as 'paranoid' or 'pathological'. For example, the importance of trust in the justification of beliefs is underscored by the chemtrail belief, and signals what is likely to be a perennial problem with any solar geoengineering program in the international sphere, where trust is often lacking. The chemtrail belief hints at the probability that a program of solar geoengineering would have destabilising regional political effects, resonating with local political realities and suspicions of global economic powers. Likewise the moral outrage accompanying the chemtrail belief, based on the revulsion at the idea of powerful elites controlling the climate, is not something that can be dismissed as 'irrational'. This is important to reflect upon, given the reality that powerful actors are currently discussing manipulating the global climate, and begs the question: is it

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necessarily more irrational to believe that the climate is being controlled, than to believe that one can control the climate? Likewise the powerful emotional connections to weather and climate that are central to the chemtrail narrative, foreground the personal or spiritual dimension of discussion around climate engineering that is rarely heard in more mainstream discourse.

However, while elements of the chemtrail narrative highlight important and sometimes neglected areas of more mainstream geoengineering discourse, the potential for engagement between believers in the chemtrail narrative and others, through processes of public engagement around the concept of geoengineering, appears limited. It would appear that the chemtrail narrative has crossed the line from 'distrust to disgust' (Pelkmans and Machold 2011), whereby those allegedly involved in the conspiracy are characterised as fundamentally evil, and unbelievers are characterised as 'mentally retarded, clinically blind or paid liars' (GeoEngineering Watch 2014b). This makes meaningful engagement around this topic particularly challenging, a point that was clearly illustrated by a response to a working draft of this paper published online, in which the present author was maligned for her perceived role in covering up the alleged conspiracy (see Disinformation Directory 2014). The association of the narrative with extreme forms of climate scepticism would also appear to limit the possibilities for critical engagement with other strands of environmental discourse. Arguably the chemtrail conspiracy narrative shares many of the traits of organised scepticism, as identified by Stevenson and Dryzek, and likewise, 'cannot provide grist for productive contestation, for at its heart is the construction of opponents not as adversaries to be respected, but as enemies to be defeated' (Stevenson and Dryzek 2012, 203).

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